WHAT IS CLAIMED IS:

1. An oscillator having a resonance circuit connected to an amplifying circuit,

wherein said amplifying circuit comprises an element having a frequency characteristic, thereby decreasing power amplification of said amplifying circuit by at least 3 dB in a frequency band lower than about 0.5 times an oscillating frequency f_o or higher than about $2f_o$, as compared to the power amplification of said amplifying circuit at the oscillating frequency f_o.

2. An oscillator according to claim 1, wherein said element is constituted by a single unit selected from among an inductor, a capacitor, and a microstrip line; or by a combination of a plurality of units selected from among an inductor, a capacitor, a microstrip line, and a resistor.

3. An oscillator according to claim 1, wherein said element comprises a dielectric or piezoelectric material and has a frequency characteristic.

4. An oscillator having a resonance circuit connected to an amplifying circuit,

wherein said amplifying circuit comprises an element having a frequency characteristic, thereby decreasing power amplification of said amplifying circuit by at least 3 dB in a frequency band lower than about 0.5 times an oscillating frequency f_o or higher than about $2f_o$, as compared to the power amplification of said amplifying circuit at the oscillating frequency f_o, and

wherein at least one of said resonance circuit and said amplifying circuit is comprised in an MMIC.

5. An oscillator according to claim 4, further comprising a peripheral circuit, wherein at least one of said resonance circuit, said amplifying circuit, and said peripheral circuit is comprised in an MMIC.

6. An oscillator having a resonance circuit connected to an amplifying circuit,

wherein said amplifying circuit comprises an element having a frequency characteristic, thereby decreasing power amplification of said amplifying circuit by at least 3 dB in a frequency band lower than about 0.5 times an oscillating frequency f_o or higher than about $2f_o$, as compared to the power amplification of said amplifying circuit at the oscillating frequency f_o, and

wherein said resonance circuit and said amplifying circuit are integrally formed on a resin substrate or a ceramic substrate.

7. An oscillator according to claim 6, further comprising a peripheral circuit, wherein said resonance circuit, said amplifying circuit, and said peripheral circuit are integrally formed on a resin substrate or a ceramic substrate.

8. An oscillator according to claim 1, wherein said amplifying circuit comprises an NPN transistor and said element is provided between an emitter of said NPN transistor and ground.

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